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The Game Of Chess: A Conduit To Increase Student Academic Achievement In Pinellas County: A Policy Advocacy Document

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The Game of Chess: A Conduit to Increase Student Academic Achievement

A Policy Advocacy Document

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National-Louis University

Submitted in partial fulfillment

of the requirements of

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NLU Digital Commons Document Origination Statement

This document was created as *one* part of the three-part dissertation requirement of the National Louis University (NLU) Educational Leadership (EDL) Doctoral Program. The National Louis Educational Leadership EdD is a professional practice degree program (Shulman et al., 2006).

For the dissertation requirement, doctoral candidates are required to plan, research, and implement three major projects, one each year, within their school or district with a focus on professional practice. The three projects are:

- Program Evaluation
- Change Leadership Plan
- Policy Advocacy Document

For the **Program Evaluation** candidates are required to identify and evaluate a program or practice within their school or district. The “program” can be a current initiative; a grant project; a common practice; or a movement. Focused on utilization, the evaluation can be formative, summative, or developmental (Patton, 2008). The candidate must demonstrate how the evaluation directly relates to student learning.

In the **Change Leadership Plan** candidates develop a plan that considers organizational possibilities for renewal. The plan for organizational change may be at the building or district level. It must be related to an area in need of improvement, and have a clear target in mind. The candidate must be able to identify noticeable and feasible differences that should exist as a result of the change plan (Wagner et al., 2006).

In the **Policy Advocacy Document** candidates develop and advocate for a policy at the local, state or national level using reflective practice and research as a means for supporting and promoting reforms in education. Policy advocacy dissertations use critical theory to address moral and ethical issues of policy formation and administrative decision making (i.e., what ought to be). The purpose is to develop reflective, humane and social critics, moral leaders, and competent professionals, guided by a critical practical rational model (Browder, 1995).

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ABSTRACT

The research about chess and education is very compelling. The usefulness of chess as an educational activity is particularly valid among children whose minds are entering the cognitive phase of abstract thinking. However, chess is useful among all age groups. Chess has been shown to improve cognitive abilities among educationally low-functioning students, and it has been shown to help students academically when traditional methods have failed to produce the desired outcome. Most people think of chess as a game, and I think the time has come for educators to think about chess in a different light. It is a game, but it is unlike any other game in existence. We can no longer afford to ignore the research touting chess as a valuable academic experience.

My research demonstrates how chess has resulted in impressive academic gains for students. This is particularly true in developing math and reading skills as well as self-esteem. This proposal addresses different ways of incorporating chess into the curriculum that could result in significant strides toward decreasing the achievement gaps existing in our schools. Research shows that the optimal time for introducing chess into the curriculum is in the second and third grades. Chess is an international learning experience for students of varying abilities and backgrounds. My policy advocacy proposal demonstrates methods of integrating chess into the curriculum with a minimum of imposition on instructional time for other subject area content and includes a pilot program to prove the concept.

PREFACE

Chess has not received the attention and consideration it deserves as an educational tool that can help educators and educational leaders improve academic outcomes. The research demonstrating that chess improves academic as well as social development is intriguing. Several countries throughout the world understand the benefits of chess and have implemented chess play within their traditional academic settings. Why has the United States been so hesitant to look at this outside-the-box methodology? I think the perception of chess suffers from the widely-held belief that chess is just a game and, as a game, chess is perceived as lacking an academic “feel.” This needs to change.

My study brings together viable research and my own ideas to demonstrate that chess can be an important academic activity. As a properly implemented addition to the curriculum, chess could prove to be one of the most effective academic enhancement programs to date. The benefit for future generations could prove to be profound. The potential for reducing behavior problems, improving academic achievement results, increasing the graduation rate, and promoting socialization among a wide variety of students from varying backgrounds is nearly indisputable. Chess could become a “game-changer” all schools desire. Ironically, in order to think outside of the box, we need to think inside the box or at least inside the 64 squares making up the chessboard.

As an educational leader, this project has opened my eyes to possibilities that exist beyond traditional means to improve academic outcomes. In my educational experience, I have noticed that quite often the error of omission in selecting promising educational programs is the most critical error. The concepts or ideas that often times go

unnoticed may be the very ideas needed to move forward in the most productive way. New initiatives, like the game of chess, may be challenging to implement because they are non-traditional and require a progressive mindset. Meaningful change requires the backing of viable research as well as a champion to move it forward. I believe I can be the champion who can bring my chess initiative to fruition.

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SECTION ONE: VISION STATEMENT

Introduction to the Problem

In this section, I will lay the foundation for my policy advocacy proposal. My vision statement illustrates the overarching “To-Be” status that I am seeking to bring to fruition by incorporating chess as a learning experience within the context of a structured educational environment. This vision may be unusual and somewhat bold, but I believe that policy advocacy should be all about innovation. The use of chess in schools as a tool to increase student math and reading proficiency is very likely to receive significant criticism. With the spirit of an educational warrior who has largely lost his innocence, I forge ahead knowing full well the battle that awaits me. I must face the dragon at the center of the garden if I am to conquer new territory for the betterment of education and children as a whole. As one researcher insists, “It requires we recognize, without flinching, the dragons at our gates and the serpents in our gardens. If a Minotaur exists at the center of the labyrinth, we must confront it—and acknowledge that it is a part of us” (Brown, 1999, p. 16). My quest is not entered into for self-serving reasons. The continual search to find a better way to serve the instructional needs of children in order to improve the educational process as a whole is a never-ending venture.

Schools throughout the United States and the world continue to debate best-practice curricula. The debate wages on between perceptions and opinions about what is and is not the best strategy for teaching our children and how a strategy can be implemented properly with the fidelity required to advance meaningfully the effectiveness of education. The purpose of this Policy Advocacy Document (PAD) is not to solve this problem outright. The debate surrounding best-practice teaching can be a

gargantuan, multi-faceted argument and very challenging to win when proposing a unique program addition. My vision is to incorporate an effective supplement to the current best-practice curriculum. This supplemental activity promises to increase student academic achievement and narrow the current achievement gap between various student learners. The meaningful introduction of chess into the classrooms of my school district is my proposed strategy for academically moving our children forward. In addition to the related research, my thoughts on the matter are rooted in my own personal experiences.

Since around the age of seven, I have been, and continue to be an ardent chess player. My mother taught me how to play and my stepfather honed my skills to the point that I was a very strong player for my age. At age nine, I was introduced to tournament play with children in my age group. I remember a United States Chess Federation (USCF) tournament in Atlanta where I won all but one of my games. After winning nearly all of the games in my age group, I played chess with the adults in the adjacent room and won nearly half of those games. The adults were very impressed with my chess skills at such a young age. The clarity with which I could see the game still resonates with me to this day. I won or placed within the top of my age bracket in several tournaments, and I believe whole-heartedly that I began playing chess at the optimal time in my cognitive development. I also believe this experience has helped shape me into who I am today.

Currently, I maintain a strong rating with the United States Chess Federation (USCF). From my experiences and love of the game, I have recognized the critical thinking skills chess fosters. The unique nature of the game demands certain attributes among players. Analyzing and properly evaluating chessboard positions requires a high

level of critical thinking skills; and the practice of these skills improves critical thinking over time. Several studies have shown that playing chess engages the mind in ways that expand a student's mathematical and reading ability. The evidence is irrefutable and overwhelming. One study illustrates the academic benefits children experience when exposed to chess.

Nearly 450 fifth-grade students were split into three groups in a 1992 study in New Brunswick. Group A was the control group and went through the traditional math curriculum. Group B supplemented the math with chess instruction after first grade, and Group C began the chess in first grade. On a standardized test, Group C's grades went up to 81.2% from 62% and outpaced Group A by 21.46%. (ChessVibes, 2012, p. 1)

A twenty percent gain is an incredible result. This study is far from unique. In fact, there is an extensive series of studies, all of which strongly tout the benefits of chess. To illustrate the extent of interest and inquiry into the use of chess to enhance education, a simple Google search using *benefits of chess* as the search criterion produce an incredible 26,200,000 results. A similar Google search using the key words *benefits of chess in education* produce an impressive 12,400,000 results. Finally, for those who may doubt the scholarly prose of such results, a Google search using the key words *scholarly chess in education studies* produces a whopping 50, 200,000 results! There seems to be an incredible amount of interest and inquiry invested into the idea that chess is a means to a greater end. As a potential enhancement to learning, chess deserves and needs serious consideration.

A scholarly article from the John Hopkins School of Education clarifies an important consideration. For what age group is chess most beneficial? At a time when school budgets are slashed, forcing schools to do more with fewer resources, using funds for the highest benefit is crucial. By identifying the age level for which chess has the most potential for effectiveness, funds may be more strategically allocated. The most significant academic gains seem to be associated with the integration of chess in the second or third grade.

America's Foundation for Chess (AF4C) has been working with 2nd and 3rd grade students and their teachers to promote the use of chess as an educational tool. The goal of the First Move™ curriculum is to use the game of chess as a tool, to increase higher level thinking skills, advance math and reading skills, and build self-confidence. (Fischer, 2006, p. 1)

The second and third grades are an optimal time to introduce chess, because the students' minds are like sponges and their brains are ripe for this sort of engagement. Fischer goes on to say, "Eight and nine year-old minds and thinking skills are developing rapidly, and chess teaches higher level thinking skills such as the ability to visualize, analyze, and think critically" (Fischer, 2006, p. 1). Fischer supports that this cognitive development phase in children is a period during which their minds are ripe for the reception of the type of analytic reasoning chess fosters.

The negative connotations associated with the game of chess are minimized at this age as well. Chess is simply a game. Chess is not a game for *nerds*. It is just a game. Even if it is seen as a game for smart people, typically, second and third graders want to gain status and earn a reputation of being smart. Most children, at this age, still embrace

school as a fun activity and have not yet developed negative associations with school that often develop during adolescence along with social pressures in our youth culture resulting in type-casting each other into pejorative categories like jocks, nerds, geeks, or airheads. Fischer speaks to the characteristics of second and third graders:

But in the second and third grade, kids want to be thought of as smart. It is also an important age for developing an attachment to school. If kids associate school and learning with fun, they will most likely develop a stronger attachment to school. (Fischer, 2006, p. 1)

This is very significant because shortly after the third grade many students begin to lose interest in school. If we can keep this interest level up, think of the increased outcomes as students move from middle school to high school and beyond.

For some children, the early-adolescent years mark the beginning of a downward spiral leading to academic failure and school dropout. Some early adolescents see their school grades decline markedly when they enter junior high school, along with their interest in school, intrinsic motivation, and confidence in their intellectual abilities. (Eccles, 1999, p. 1)

Perhaps if we introduce chess in an optimal way and at the optimal age, in the long-term and even in the short-term, we can increase our graduation rate. By incorporating chess as an academic tool we can increase the percentage of more highly educated and productive members of society. This is the ultimate goal of any educational institution.

In addition to research based results that clearly point to improved academic performance, chess also enhances technological ability and problem solving skills among children. Chess positions continually morph as the game progresses, forcing players to

adapt to changing game dynamics. Children learn how to adapt and change their thinking multiple times in just one game. A study conducted by faculty in Economics and Business at the University of Sydney finds evidence of a progression of technical skills enhanced by playing chess:

They [students preparing for the globalizing world] also need to acquire the skills to be able to learn new technologies quickly as well as solve a continual stream of problems with these new technologies. This is where chess as a tool to develop our children's minds appears to be especially powerful. By its very nature chess presents an ever-changing set of problems. Except for the very beginning of the game — where it's possible to memorize the strongest lines — each move creates a new position. (Dauvergne, 2000, p. 14)

The adoption of chess as an academic tool is far more widespread than many realize. The fact that so many countries value chess as a useful academic addition is interesting. Perhaps they have discovered something the United States has been slow to recognize. Thirty countries throughout the world recognize chess as a game that goes far beyond the normal attributes of a typical game and include chess as a viable part of their countries curricula (Ferguson, n.d.).

Critical Issues

The school district, in which I am currently employed, as well as all public schools throughout the United States, is striving to improve academic outcomes for students. Initiatives such as common core and incorporation of best practice teaching methodologies such as those touted by Robert Marzano are part of this quest for improved academic outcomes and are currently being employed to this end. There is also

strong advocacy for early education to prepare students for school so students in the early grades do not fall behind. If students fall behind academically early on, it is very likely this will lead to a marginal educational experience, followed by a lifetime of menial wages and a lower quality of living. Providing children with a high quality educational experience early in life addresses potential future deficiencies in education and skills and promotes a higher quality of life.

The current educational environment is ripe for an innovative and effective strategy to move us forward academically. The introduction of chess could become a viable part of the elementary curriculum. I believe, starting at age seven and/or eight, chess could improve academic outcomes for students and have far-reaching long-term positive quality of life effects. This initiative would be relatively inexpensive and simple to implement in relation to the anticipated outcomes. In this way, the introduction of chess instruction meets the economic value of efficiency. The return on investment (ROI) would be very high in my estimation.

We have an ethical responsibility as educational leaders to do all that we can to move our children forward both academically and socially. Incorporating chess as an integral part of the academic solutions we are seeking would have profound effects on the academic climate and results. If we choose to ignore chess as an effective academic supplement, it would be tantamount to neglect because of the strong ties associated with chess to positive research-based outcomes. Choosing to ignore chess, in my judgment would cause us to miss a tremendous educational opportunity. We must seriously consider any and all effective academic enhancement strategies. If the research supports chess to this end, I believe it would be logical and ethical to embrace it enthusiastically.

Recommended Policy and Envisioned Effect

Based on considerable research on chess as an optional academic program that can both enhance learning and improve social skills, I recommend that the superintendent approve chess as an optional academic program for elementary schools starting with a pilot program in the second and third grades. Funding should be provided for a two-year pilot project. As a pilot, I recommend the implementation of a district assessment twice a year for two years to determine whether or not the program is being implemented with fidelity. Reading and math assessment results should be assessed to determine the capacity of the program to influence positively student achievement. The future direction of the program should be based on said results.

I am advocating a policy change that approves chess as an important supplemental academic activity. This is based on research that indicates it has the potential to improve student achievement. This should be done even though there may be a perception of chess as just a game or a waste of time. Chess should be recognized as a special activity that promotes critical thinking skills and thus it is aligned to the common core standards.

I think we should start teaching chess to children on a voluntary basis starting in second grade. It is very important that we create and implement a viable curriculum for chess, presenting the strategy and critical thinking aspects of play, rather than just allowing students to entertain themselves playing the game. To derive the greatest benefit, students must be provided essential instruction and guidance to learn the fundamentals and the intrigues of the game. Without the tools needed to understand the nuances of the game, academic outcomes will be negligible.

In addition to the instructional element, I am advocating that the school system organize and implement competitive tournaments within the county and at some point even engage in chess tournaments on a grander scale outside of the county in some instances, and at the state level. These larger tournaments called “opens” are large-scale events sanctioned by the United States Chess Federation (USCF). During such chess opens, rankings are determined depending on a player’s performance in the tournament, age, and performance in past tournaments. This is where strong players’ rankings and titles are born such as Grandmaster (GM), Master, and International Master (IM). These tournaments could add additional student and community interest, legitimacy to school chess organizations, and bring positive publicity to the school district. Throughout the tournament process, it is important not to forget the over-arching goal. We should promote chess because doing so would improve educational outcomes for students and the more students we can involve, the better. The tournament is the promotional aspect of the policy advocacy document and supports the teaching of Common Core (or Florida’s own Version, Florida Standards) by inspiring increased participation in an important supplemental activity, which is chess play.

The content of the Common Core standards, which are the cutting-edge new generation educational standards currently in existence, include concepts and skills which are learned and practiced during chess play.

When students are not successful in math, we should not stick to the “theoretical instruction model” used by the classroom teacher. Using chess provides an alternative method to teach some of the most important probability skills using an applied instructional model through game simulation. (Jaras, n.d., p. 1)

The benefits of chess are correlated closely to math and secondarily to reading. Jaras underscores that “Chess is one of the best tools for learning logic, problem solving, and visualization” (p. 3). As we implement Common Core and delve more and more deeply into conceptual understanding and not just covering content, chess and other similar learning experiences will help educators assist students achieve skills and abilities in problem solving and critical thinking as tools for achieving the rigorous learning goals associated with various subject areas.

There is no current policy on chess in my school district. Chess is currently an after-school club in many, but not all, schools. It seems that the benefits of chess have not been realized in the county schools as they have been in over thirty countries and certain areas of the United States. For example, the Canadian policy on chess as an educational tool encourages its use in more and more schools as a vehicle to improve mathematics instruction and achievement.

In Canada, a growing number of elementary schools have incorporated chess into the regular school curriculum. Looking specifically at Quebec, 10 years ago their math scores were the lowest in the country, Chess became a school subject and now the children in Quebec have the highest average math scores in Canada.

(Russell, n.d., p. 1)

This is just one of many examples. However, these types of outcomes do not just happen when you hand chess pieces and chessboards to students and invite them to play. A teaching element is essential to proper implementation for maximum results.

In order for chess to be incorporated into instructional practice with fidelity and moved beyond after-school club status, as it is now, it is important for chess instructors to

have a certain level of proficiency in the subject. In other words, the people who are chosen to introduce the chess curriculum need to meet certain requirements of knowledge, skill, and chess-related instructional methods understanding. Obviously, they would need to know how to play beyond knowing how the pieces move, and they would need to take some type of a screening test (like a subject area exam) in order to assess their level of competence. The district should encourage the recruitment and development of these chess instructors so they can help launch this initiative in our elementary schools.

If my district introduced chess as a viable curriculum option for second and third grades in conjunction with other best-practice teaching strategies, I think test scores for participating students would improve significantly. Participating students would likely experience improved academic performance in future added grade levels as well. Teachers and district leaders who are staunchly in the camp of a strict menu of reading, writing, and arithmetic, and drill and practice might be stunned by the results, but they would not be able to refute documented attributable gains. Within the context of a structured curricular presentation and based on the academic gains anticipated, I am convinced that we should embrace chess as a supplement to best-practice teaching strategies.

SECTION TWO: ANALYSIS OF NEED

Educational

As mentioned in the previous section, when considering an instructional change of practice the question must be answered as to whether the change has sufficient merit to be worth the tradeoffs in effort and instructional time. Does playing chess provide enough of an educational benefit to justify replacing instructional time spent engaging in other educational activities? Would some students have a loss of educational benefits? To negate these concerns, it is important to encourage chess, but not require it. No one should ever feel compelled or forced to play. Forcing students to play as a mandatory activity requisite of compliance would have a counterproductive effect. Students' interest-based engagement and the novelty students find in the activity could be lost and it would lessen the allure of chess being a fun game as well as a learning opportunity.

In the context of what is currently going on in education this will require a profound change in thinking. However, if we are true to ourselves and the mission of educating children, we simply cannot ignore the research. Without research, we look blindly for solutions to problems and have no concrete frame of reference for our wanderings. We must trust and validate research in this and all ventures. Furthermore, we must be objective as we move forward and eliminate bias and subjectivity wherever we find it, to the greatest extent possible. There must be a check-and-balance approach with this initiative. Participating students must demonstrate academic progress on a continuous basis to validate the effectiveness and future use of the program.

Economic

There would be a monetary cost associated with introducing chess in the way I am proposing. Chess boards, pieces, time clocks, instructional materials, books, tournament fees, air fare, stipends, salaries, and hotel expenditures are necessary. The physical structure already exists so there is no need to create space to engage in this activity. I foresee a need to hire a full time person or designate a portion of a district level employee's time, in order to provide leadership and coordination for the program. By providing a chess liaison to oversee and be responsible for the development and implementation of chess curriculum and programming, the benefits would more than justify the costs.

The chess liaison's role would include the promotion of chess through tournament play and other potential district level events. Another role of the liaison is to develop the skills and knowledge level of chess instructors or coaches providing professional development through formal trainings and other support and knowledge-building avenues. Without this chess liaison, I do not see the implementation of chess as a viable program for the advancement of academic achievement. We would need other staff as well that will create additional costs for the district, but the number of people needed to launch this initiative effectively would be few; consequently, the cost would not be prohibitive, yet such costs should be weighed against the projected benefits.

Students and school teams who engage in chess open tournaments and perform well at such events can bring considerable distinction to a school district. With positive recognition, future chess program growth would be encouraged. As noted above, all of this costs money. In addition to the monetary costs, there would be some instructional

time for other academic activities lost in providing the needed time for the chess academic activities. However, once again the district must weigh this subbing one academic activity for another in terms of potential and actual learning outcomes students must achieve. At the outset, let us consider the monetary costs. In my perspective, the economic costs are insignificant in comparison to the potential long-term positive benefits that research indicates would be likely from the appropriately formulated introduction of chess as an instructional tool. I have provided below the costs associated with this program based on three models. The first is total district elementary school level implementation, the second cost model is based on the selection of twenty pilot schools, and the third is based on a limited pilot implementation at five schools.

Each model includes the cost of a full-time position to fulfill the role and responsibility of chess liaison. Since this represents the highest cost for the implementation in all three models, I thought it would be important to define the role. The district chess liaison would be responsible for overseeing the entire program district-wide, which would involve visiting elementary schools and assessing the fidelity of the overall program implementation. This person would also be responsible for reporting bi-annually to the school board and the superintendent in order to present standardized test data on participating students in comparison with non-participating students. These data should be shared at consistent intervals. The district chess liaison would also be responsible for managing the budget to ensure proper resources are in place to implement this program effectively.

The school-based chess club sponsors would be responsible for operating a successful chess club under the direction of the district liaison. The school site sponsor

would track the students who take part in the program and compare their standardized test results and grades to similar students who did not engage in the chess program. These findings would be aggregated and presented to the district chess liaison. Additionally, the school-based sponsor should work with the district-level liaison to allocate resources needed to run an effective school-level chess program.

The first of the three models involves all 76 elementary schools with the estimated cost of this program delineated in Figure 1.

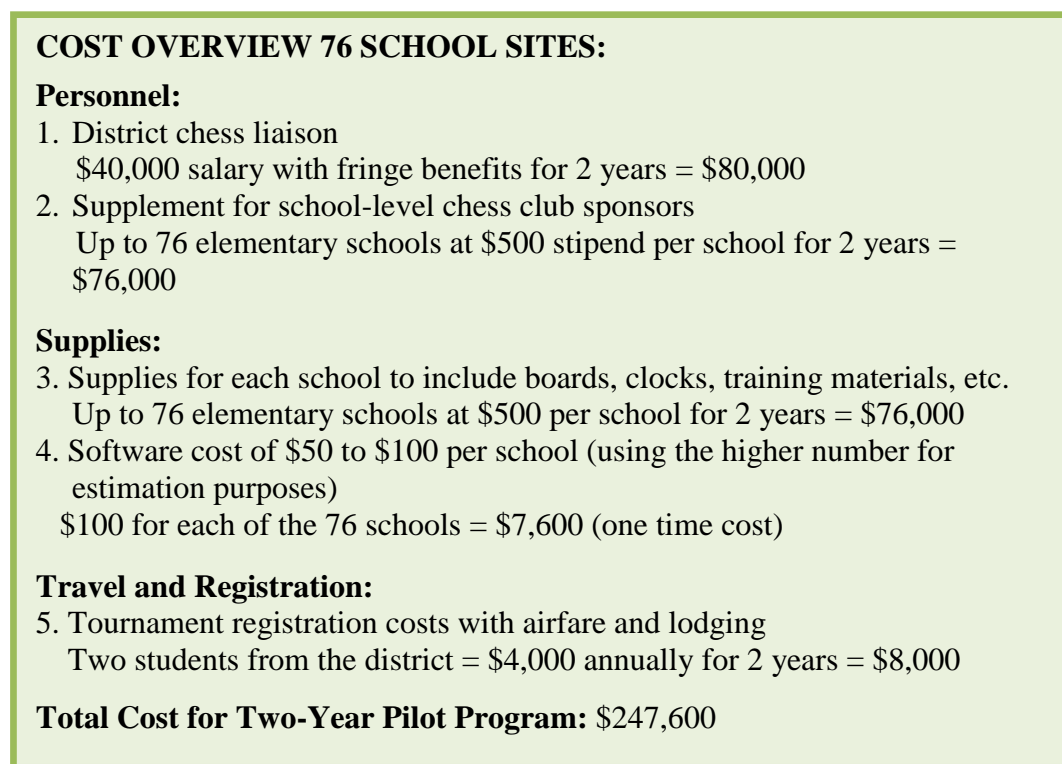


Figure 1. Model One: cost basis for all 76 elementary schools.

Initially, it is highly unlikely that this level of implementation would be achieved. I would be surprised if half of the elementary schools would participate in the beginning. However, the cost of all schools participating would be \$247,600 over the course of two years. This means the annual approximation would be \$123,800. This represents the highest potential cost of any of the three programs listed because it involves so many

schools. Although this projection has the highest potential cost, it also can provide the greatest benefit due the involvement of all elementary schools.

If I assume a smaller participation program for the first year with 20 of 76 elementary schools taking part in a pilot program, the estimated expenses are presented in Figure 2.

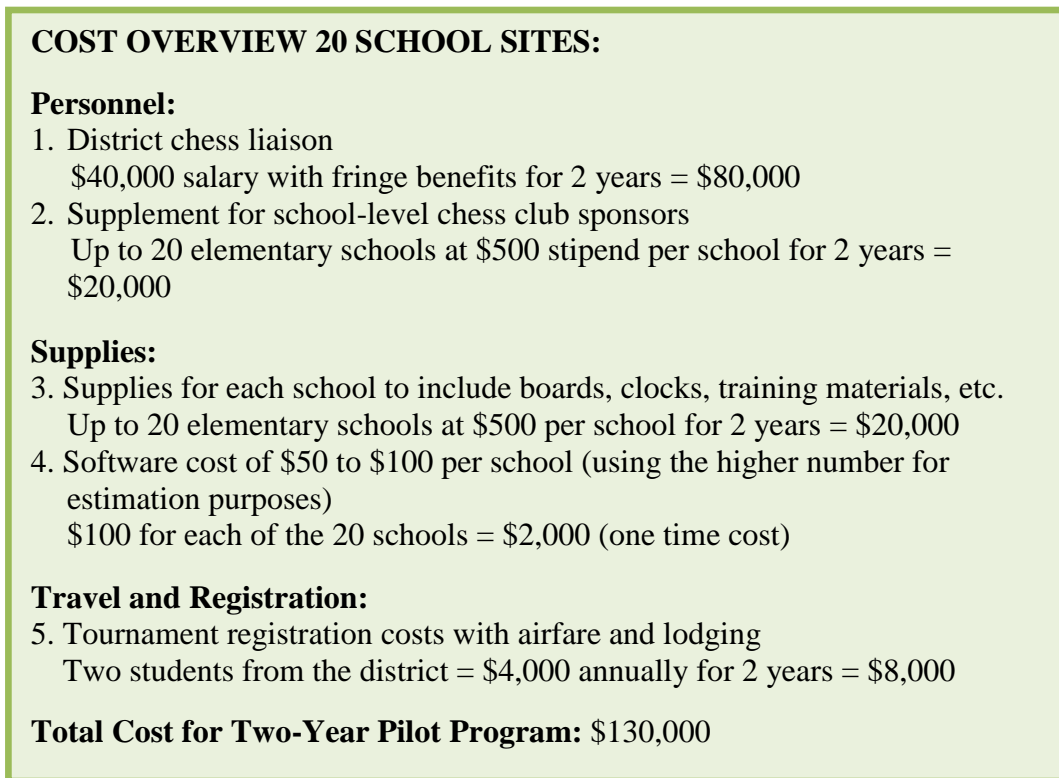


Figure 2. Model Two: cost basis for 20 pilot elementary schools.

This estimation for the smaller pilot and based on the probability of annual increases in cost, the total budget required would be approximately \$130,000 over the course of two years. The software would be a one-time purchase. This means the annual expense projection for this smaller pilot would be \$65,000. Therefore, the annual expense projection considering both the lower estimate and the very high side estimate would be \$65,000 to \$123,800. In my judgment, this is a reasonable pilot budget when you

consider the projected academic outcomes from such a project. With this planned projection of expenses, the chess initiative could be effectively implemented with highly qualified people in place, chess tournament considerations given to promote the project and create a sense of competition, and viable software acquired to implement the chess instructional component with fidelity.

I have a plan should it become necessary to implement an even smaller pilot program to develop further validation prior to full implementation. This secondary plan is along the same lines as the original plan, but on a much smaller scale. This pilot plan would involve only 5 elementary schools and would be designed to produce the data needed for validation and future expansion. The estimated costs of this plan for 5 schools are depicted in Figure 3.

COST OVERVIEW 5 SCHOOL SITES:

Personnel:

1. District chess liaison
\$40,000 salary with fringe benefits for 2 years = \$80,000
2. Supplement for school-level chess club sponsors
Up to 5 elementary schools at \$500 stipend per school for 2 years = \$5,000

Supplies:

3. Supplies for each school to include boards, clocks, training materials, etc.
Up to 5 elementary schools at \$500 per school for 2 years = \$5,000
4. Software cost of \$50 to \$100 per school (using the higher number for estimation purposes)
\$100 for each of the 5 schools = \$500 (one time cost)

Travel and Registration:

5. Tournament registration costs with airfare and lodging
Two students from the district = \$4,000 annually for 2 years = \$8,000

Total Cost for Two-Year Pilot Program: \$98,500

Figure 3. Model Three: cost basis for 5 pilot elementary schools.

This means the estimated total cost for this pilot program, involving 5 elementary schools, would require a budget of \$98,500 for two years or \$49,250 annually. If two elementary schools took part in the projected pilot program, the two-year estimation for a two school pilot program is \$92,200. Annually the cost would be \$46,100. This would be the bare minimum participation needed to obtain enough data for meaningful comparison purposes.

Social

Chess, like many games, has a social development element associated with it. Chess requires a certain amount of social interaction as players engaged in play must declare certain conditions to one another during the game. For instance, a player can state that the condition of “check” exists on the opponent’s king or in another instance a player may offer his/her opponent a “draw.” The opposing player may either accept or reject this offer. There is within the context of the game formalized conventions of communication. These conventions reinforce good sportsmanship with the practice of respectful compliance to the game's rules of play and respectful communications to one's opponent. In addition, setting up the board correctly and deciding who goes first are all social interactions when it comes to playing chess. Sharing knowledge of the game and recounting past games provide a social connection and a frame of social interaction unique among chess players. In addition, the spirit of competition that chess provides generates a contagious excitement and interest among children. Patrick S. McDonald who is the Youth Coordinator for the Ontario Chess Association compiled a list of findings resulting from an inquiry into the impact of chess on positive social skills

development. Among the results of these inquiries, he reported his findings about the social implications of chess.

In the schools, chess often serves as a bridge, bringing together children of different ages, races and genders in an activity they can all enjoy. Chess helps build individual friendships and also school spirit when children compete together as teams against other schools. Chess also teaches children about sportsmanship - how to win graciously and not give up when encountering defeat. For children with adjustment issues, there are many examples where chess has led to increased motivation, improved behavior, better self-image, and even improved attendance. Chess provides a positive social outlet, a wholesome recreational activity that can be easily learned and enjoyed at any age. (McDonald, p. 10)

His review of the research reflects the far-reaching positive influences that chess contributes to social development. Although chess is often thought of as a solitary game, the social aspects and associated conventions of etiquette, with other related expectations of good sportsmanship, exist within the context and culture of the game of chess. Students learn and practice these norms of the game as they engage in chess. The interesting thing about the game is that it is a great social leveler. Chess, as a game and a culture of social practice, creates a context in which individuals stand on an equal footing; the context does not discriminate because of where you come from or what you have or do not have. All things are equal on the chessboard and all of the money in the world will save you from a strong player. In this way, there is a tremendous sense of fairness related to the game as it provides a context in which very different children may interact, learn, and enjoy the game together. As an instructional tool, the even playing

field is described as a benefit to engage and provide social interactions among diverse populations: “Chess is an especially effective teaching tool. It can equally challenge the minds of girls and boys, gifted and average, athletic and non-athletic, rich and poor” (Dauvergne, 2000).

Political

Can offering chess as an elective course of study withstand the resistant political pressure, which is likely to come from educators, politicians, parents and others?

Objections are likely to come from those who do not buy-in to the value of introducing chess as an integral part of the academic world. The perception that chess is simply a waste of time exists. Can we justify taking away from other academic endeavors to play chess? The fact is that time is finite. There is only so much time available every year for instruction. Today community members are more than ever openly critical of school expenditures. As an assistant principal in charge of transportation, I was releasing busses one afternoon and a member of the community stopped his car to talk to me. When I approached him, he began to chastise me about how empty the busses appeared to be and told me he was a taxpayer. This man needed more information about the true state of events. He made this comment on a day when we were giving end of semester exams so less than half of the normal loads of students were present. I am surmising that he did not consider this.

This is an example of an important school level political issue that surrounds education. Parents, board members, teacher unions, and others are sensitive to many issues and openly critical of educational practices especially related to funding issues. The use of resources is one of their key concerns. Chess can easily be seen as merely a

game only and a “waste” of instructional time and money. I believe this is the most crucial political concern that the district and I must address. Can the introduction of chess withstand this kind of scrutiny? I believe this obstacle can be mitigated, but it will not be without cost or struggle. The key, as with the bus issue I mentioned previously, is to educate all our various publics, internal and external, with the promising research and work about chess as an instructional tool in order to garner needed support.

Moral/Ethical

One of the moral and ethical considerations to address concerning the introduction of chess as part of the curriculum is the matter of time. This necessitates the consideration of the time taken away from another important learning activity in order to play chess. Is the tradeoff worth it? This is an important consideration and will be dealt with in this document. Can we justify having students play chess instead of another more directly related academic activity like math tutoring? The answer lies in how chess is introduced into the curriculum. I believe a brief interjection of chess curriculum as a limited part of the curricula would be worth the tradeoff in time. I believe this is true because additional time spent having students engage in more of the same activities does not necessarily yield greater results. For example, if a student is struggling in math, giving the student two math courses does not necessarily mean he/she will improve in math twice as much. In fact, the exact opposite could happen. The reason the student is taking two math courses is either he/she did not like math and/or just did not perform well in that area. Perhaps a different supplemental approach is needed rather than more of the same. At some point when a student is not progressing adequately, more of the same is not the answer. Beyond consideration of the time tradeoff and the reasonable

cost associated with incorporating chess in a concerted and meaningful way, I believe the moral and/or ethical imperative is to find other research based approaches to enhance student learning gains; chess should be one of those options.

Another consideration to make concerns those students who choose not to play or learn chess if it is offered. I strongly believe children should not be forced to play. For this reason, chess should never be the only instructional activity available during a block of instructional time should a school choose to incorporate chess into their curriculum. The voluntary nature of the activity leaves room for other effective instructional alternatives as well.

Any policy advocacy issue asking for change involves risk. The introduction of chess in the way I am proposing definitely would involve taking a political risk. This will not be an easy sell, but policy advocacy calls for bold action.

Naturally, the policy advocacy concept is recommended here as a direct response to this reform appeal. This new appeal, encouraged particularly by the subjectivist work of Greenfield (1975, 1980, 1988) and Hodgkinson (1982, 1991), also aims at promoting greater risk-taking and activist reformer roles for administrators than the traditional executive leader role, a role often criticized for managing the status quo and for playing it safe (Mitchell and Hawley, 1972). (Browder, 1995, p. 48)

The introduction of chess will be a risk-taking venture despite the sound basis in research that conclusively points to the potential academic benefits. Despite these struggles, policy advocacy change calls for bold action and to use another interpretation of the quotation above, thinking outside-the-box. Dramatic change is a difficult concept

for most people to accept, and the incorporation of chess as an instructional tool is definitely a change in the academic landscape and what we as educators have traditionally considered acceptable practice.

SECTION THREE: ADVOCATED POLICY STATEMENT

Goals and Objectives

The main goal of my policy advocacy document is to make chess an optional learning strategy for students in elementary schools to improve student achievement in math and other subjects as needed as well as enhance their social competence. This should serve to incorporate higher learning skills that would be transferrable to all academic areas. It should be addressed as a pilot and expanded based on compelling research findings touting chess as a viable learning alternative.

The first objective is to increase the reading, math, and social skills of all students. A second objective is to change the perception of chess within the educational context. Chess should never be perceived as a non-academic experience, but should be viewed as a productive supplement to traditional instruction. Once this is clearly established as a way of work within the teaching profession, the third objective is to look at viable strategies to increase chess play in schools, particularly at the elementary level where cognitive development in children is ripe for the type of learning chess play fosters.

Proper implementation of chess as a viable supplement to instruction requires the creation of a plan. The plan for proper implementation involves the scheduling and creation of various tournaments as well as the creation or adoption of effective chess curricula for children. It is important for students to understand the basics of the game in order to obtain the greatest benefit from chess play. Without the basics of chess being taught, students will just be moving around the board with no clear purpose. I have witnessed this in chess clubs. Proper instruction is necessary to gain the benefits

associated with chess. Chess will not provide higher-order thinking gains and other benefits unless it is introduced and maintained as an intentionally presented and implemented instructional tool.

Stakeholders Related to the Policy

The stakeholders who will be represented by my suggested policy change include the students, parents, teachers, administrators, and those who hold significant decision making responsibilities over K-12 education policy in my school district. As educators, we all have a stake in educating children in the most efficient and effective way possible. Therefore, we are under professional obligation to consider any initiative that is found to be effective, according to best practices research. Without the validation of research we are only guessing as to what will or will not be an effective teaching strategy.

The reasons that the stakeholders mentioned above need to consider chess as a supplement are multi-faceted. Educational leaders need initiatives which are inexpensive and effective. Chess is both of these. In addition, chess fosters cooperation and social interaction among children from all different backgrounds and socio-economic classes. Chess does not care what you have or do not have. Chess does not care what color you are or where you come from. Chess is a great equalizer. Everyone is the same on the chessboard and equal chances exist within the context of the game. Only individual skill, which can be developed over time, differentiates players. Finally, research shows it can help students increase math and reading skills and social competence.

Additionally, elementary teachers, administrators, and students have a significant stake in this initiative. It is at the elementary level that this initiative has the greatest promise, although the benefits extend beyond this limited context to include all grades.

The students will realize the greatest benefit from the introduction of chess from the concerted and thoughtful introduction of this supplement at around the age of 8, or the second and third grade levels. Therefore, elementary personnel, students, and their parents are the most significant stakeholders related to this initiative.

Rationale for the Validity of the Policy

The goals and objectives of this chess policy are sustainable because they are strongly supported by research. Opinions differ, but research is the light that shines the way in the darkened room as we try to address a highly complex issue, the current state of education throughout this country. Perhaps we should trust in the research and think outside-of-the-box. I would venture to say initiatives have come and gone in schools with less support from research than chess has garnered. We must trust in the research and if research is presented refuting the potential of chess to improve academic outcomes for students, we should consider this as well. However, no research exists, to my knowledge, refuting the viability of chess as a vehicle to improve student academic performance.

Not only is learning chess and playing chess an effective education activity and supplement to instruction, but it also is a cost-effective strategy that I believe will yield significant return on investment. As we struggle to find better ways to teach elementary aged children and reduce the number of students who fall behind in successive grades, perhaps chess be the answer. It is an instructional strategy, if developed properly, that can reduce the number of students entering middle and high school with limited academic skills. Having another such tool to address the growing achievement gap between groups of students should be welcomed. Many secondary students are several grade levels

behind academically, and their chances of graduation are significantly reduced despite well-intended interventions. Some of these students are so far behind that adapting to the increased rigor as they move up from grade-to-grade is a very difficult task. A scholarly journal article about the use of chess with *at-risk* students had this to say:

Students at risk tend to rely on previously employed but unsuccessful responses, process information less effectively, and are often unable to solve problems in their lives (Agran & Wehmeyer, 1999; Swanson & Alexander, 1997; Wehmeyer & Kelchner, 1995). They have difficulties in utilizing higher order cognitive skills. Feuerstein (1980) claimed that enriched environments could resolve these difficulties. Teaching and practicing these cognitive skills through chess playing to students at risk have produced better results in basic skills than over reliance on drilling, direct instruction, or other current school improvement methodologies (Pogrow, 1988). Pogrow even argued that the acquisition of higher order cognitive skills compensates students at risk who are deficient in basic skills, because higher order cognitive skills are considered as a knowledge base for all learning. (Hong & Bart, 2007, pp. 89-90)

Perhaps it is time to think differently when it comes to teaching *at-risk* youth. According to this article continuing to push the same curricula year-after-year, will produce the same limited results. It is time for a game-changer. Chess has unique attributes that can improve higher-order critical thinking skills. In addition, playing a game would be far less intimidating for a struggling student than attempting to conquer a subject they have struggled with for years. For these reasons, chess would be a viable and effective

supplement that would help my district and others overcome achievement gaps and improve academic outcomes.

SECTION FOUR: POLICY ARGUMENT

Pros

Chess is a positive educational enhancement activity in many respects. For young children who are expanding their cognitive abilities, chess provides a fun brain-based activity which improves academic outcomes. Many times even a very limited exposure to chess produces results.

In Marina, CA, an experiment with chess indicated that after only 20 days of instruction, students' academic performance improved dramatically. George L. Stephenson, chairman of the Marina JHS math department, reported that 55% of students showed significant improvement in academic performance after this brief smattering of chess instruction. (Dauvergne, 2000, p. 10)

If 20 days of random chess instruction produces these kinds of results, imagine what a structured and well-planned chess initiative would accomplish.

For students who have fallen woefully behind, chess provides a bridge to close achievement gaps, and for students who are behavior problems, chess provides a positive social and behavioral conduit which dramatically improves behavior in students who would otherwise be disruptive in the classroom setting. The following testimonial alludes to the significant improvement in student behavior attributed to playing chess.

In 1988, Joyce Brown, an assistant principal and supervisor of the school's Special Education department, and teacher Florence Mirin began studying the effect of chess on their Special Education students. When the study began, they had 15 children enrolled in chess classes; two years later they had 398. "The effects have been remarkable," Brown says. "Not only have the reading and math

skills of these children soared, their ability to socialize has increased substantially, too. Our studies have shown that incidents of suspension and outside altercations have decreased by at least 60% since these children became interested in chess.

(Dauvergne, 2000, p. 10)

Please note the significant 60% decrease in the suspension rate mentioned in the situation above. Not only were academic outcomes improving dramatically, but also behavior issues were reduced substantially. Decreased behavior problems can improve academic outcomes by maintaining a more orderly and productive learning environment.

Numerous studies on the instructional efficacy of chess have shown academic improvement in children's achievement gains time and time again. This non-traditional instructional strategy is utilized in many countries throughout the world and in major cities here in the United States. One state in particular has embraced the potential of incorporating chess into the school curriculum. New Jersey has enacted legislation promoting the use of chess in schools to further state goals of high student achievement. Research supports the use of chess as a learning activity for schools. It indicates that we can enrich the outcomes of children at optimal age ranges, thereby improving academic outcomes for these children for years to come. These educational outcomes, which largely can be gained and sustained with limited resources, are well worth the cost in time, planning, and materials.

As we struggle to find the right formula for seeking educational excellence in this country; unfortunately many of those students who are already behind will typically remain behind. This is where chess shows the most promise of any non-traditional academic activity: "Chess brings out latent abilities that have not been reached by

traditional educational means” (McDonald, n.d., p. 19). Chess has the ability to bridge achievement gaps among children making it an ideal activity to promote interest in school among students. Chess can help us improve educational outcomes in students who are years behind academically.

The achievement and positive outcomes with students who are typically behavior problems in school is particularly intriguing. Students who have been constant discipline problems can find solace in the sixty-four squares of a chessboard. Patience, concentration, social etiquette, critical thinking skills, and problem solving skills can be fostered in *all* children through my proposed chess initiative. All things are equal on a chessboard, irrespective to race, economic inequities, or academic ability. In order to reduce behavior problems and increase positive educational outcomes, my district should consider this viable intervention before these students lose their way.

Children often start to lose interest in school early on in the elementary grades.

Anne Paul had this to say in an article in TIME magazine:

Too often the story unfolds this way: struggles in third grade lead to the “fourth-grade slump,” as the reading-to-learn model comes to dominate instruction. While their more skilled classmates are amassing knowledge and learning new words from context, poor readers may begin to avoid reading out of frustration. A vicious cycle sets in: school assignments increasingly require background knowledge and familiarity with “book words” (literary, abstract and technical terms) — competencies that are themselves acquired through reading. Meanwhile, classes in science, social studies, history and even math come to rely more and

more on textual analysis, so that struggling readers begin to fall behind in these subjects as well. (Paul, 2012)

Right around the third grade seems to be a pivotal time in a child's academic experience. This is when reading requirements become more and more pronounced in all subjects. For those students who struggle at this time, school becomes a source of continual frustration and it does not get any better in subsequent grades. Chess may be the conduit we need to keep students on track and focusing in an academic and behavioral sense. When we lose students' interests around the third or fourth grade, this has profound and long-lasting repercussions. These students often become the dropouts in the 9th or 10th grades. Up until this time, these students can be behavior problems as well. Behavior problems in schools affect the students who are behaving poorly and those around them. Chess provides the non-traditional approach we seek and would be a game-changer if properly implemented. We have a moral obligation to provide students with the best research-based educational resources possible.

Cons

Chess can be an effective strategy to increase academic outcomes among children in this country. It has had limited support from educators and the public and seems to be confined to certain areas of the country and the world. The states of New York and New Jersey, and Canada have been proponents for chess play to improve student outcomes, but support in general has been spotty at best. Bobby Fischer brought much notoriety to the chess world when he took on the Soviet Union in the early 70s during the *cold war* period and won. This feat was unprecedented for an American. Prior to Bobby Fischer's meteoric rise in the chess world, Russia has dominated the chess scene by crowning a

champion nearly every year. Since this brief period in the early 70's, chess has been largely marginalized in this country, not achieving the same popularity as video games and other more popular activities among America's youth. In short, chess has a popularity problem.

Despite this image problem, young children tend to be open to new ideas like playing chess. This is why I propose an introduction to chess in the early elementary grades. In the academic setting playing a game of any type is generally more appealing to children than the typical academic exercises found in all schools. This is particularly true when chess exposure is limited. In this situation, students would look forward to playing because it is such a small part of a wide variety of educational offerings. The fact is that children and youth like games. If students can play a game that improves their academic prowess, this creates a win-win situation.

The popularity of the game today is relatively low. From my experience, chess clubs tend to have low attendance rates. Without the competition element involving tournament play, participation rates might be so low that chess might not make any kind of a significant impact on academic outcomes. Competition provides interest, excitement, and purpose. I believe that if a chess program is thought out and implemented thoughtfully and carefully, it could make a tremendous impact. Without careful planning, the chess initiative will not be successful and would likely be thought of as another failed experiment.

SECTION FIVE: POLICY IMPLEMENTATION PLAN

Implementation Model

I envision the implementation of one of three models: One model is the one I have alluded to throughout this document. This is a district-wide initiative that could be implemented in up to 76 elementary schools beginning with the second grade. All of the data and ideas discussed so far are related to this project. However, I think additional validation is necessary before involving all schools. I also suggested two other models. The second model would involve twenty schools. The third model is designed for program implementation in only five elementary schools. Obviously, the cost of a five-school pilot would be the least financially problematic.

I envision ultimately a model where chess instruction is encouraged and implemented with fidelity at all school levels, starting in elementary school. Realistically, I see starting with a small pilot involving a concerted and planned introduction to the game in the second grade. This is roughly the time when a student's cognitive development is conducive to the abstract thinking chess demands. It would include only a small portion of the school week devoted to learning chess and school and student participation would be strictly voluntary. I believe this time would have a positive impact on student learning and behavior if implemented properly. In fact, research shows that incorporating chess as a viable part of the curriculum has profound learning and social benefits. Once a student reaches middle school and high school, I think chess instruction and support could be continued as an after-school activity where tournament play is organized, students are ranked, and instruction is provided beyond the beginner level with equally positive effects.

I am recommending that my school district develop a vetting process for chess coaches where chess instructors are identified through a qualification process. The district should oversee the qualification development process and the entire chess program through a district chess liaison who works to forward the chess initiative for the district. There also needs to be school-based chess coaches paid just like any other approved academic activity leader, especially due to the serious expectation for the chess program to increase learning outcomes. The district chess liaison should lead the creation of a viable chess curriculum, support its implementation, and assist in its overall program assessment as it is described in the next section. Finally, there are basic materials to provide for the program as it is developed and expanded if justified based on the monitoring and evaluating process that would be incorporated as part of the development process. Again, the model I am proposing will allow the district to systematically incorporate the program and maximize its impact.

SECTION SIX: POLICY ASSESSMENT PLAN

Monitoring and Evaluating Progress

In the sections above, I indicated my strong opinions about the usefulness of chess in academic settings. The research corroborates my viewpoint, but is this enough to withstand criticism and allow for my proposed pilot? Additional proof of the usefulness of chess to meet the learning needs of students in my school district is required. We need to be able to demonstrate that research, including our own, supports chess as an effective learning enhancement activity.

It is necessary to conduct our own research inquiries to assess the impact of our chess pilot program on student achievement and behavior. To do this, I recommend that my district identify five elementary schools to implement the program. The five school leaders then should select at least one second-grade teacher that plays chess and has a strong knowledge of the game. These five schools and their chess teacher or teachers should be willing to supplement their current academic instruction with chess play as an academic enhancement learning activity.

One thing that needs to be addressed before implementation and that could have an impact on the activity evaluation process is the time for teaching chess. I have researched how many minutes out of the school day would be optimal for deriving the benefits that playing chess promises. There are precise numbers of minutes in the school day recommended in various research studies to dedicate to chess in order to derive maximum benefit, but the suggested time recommendations vary widely. I believe, based on my personal experiences, the minimum allocation of time schools should accommodate through their current schedules and still realize expected learning gains, is

30 minutes a day. As with most instructional time allocations and programming schedules, incorporating chess as an instructional tool into the school day requires considerable thought and attention. For monitoring and research purposes, any amount of time a school would want to schedule over the minimum would need prior district approval in order to plan and track various outcome impacts such additional time might have. I believe additional time over the 30 minutes a day would provide an increased effect, but time for chess instruction must be such that it takes a limited amount of time away from core subjects.

For a fair evaluation of chess's impact on learning, the district should provide adequate resources for its implementation. In addition to providing adequate staffing, the district would need to purchase items such as chess sets, clocks, and chess notation pads for the five schools to insure maximum impact of the . Also, the chess program should be based on proven systems and best practices that have a consistent record of improving chess performance among beginners.

Of course, creating second-grade chess learning and playing activities would require parent permission in order for their children to participate in this unique curriculum offering. So monitoring and evaluating the learning and behavior outcomes for students taking chess in any class should be compared to those students who are not taking chess in that class or any other second grade class or classes in the school or district. These comparisons should be made using teacher progress assessments and standardized test results in reading and math as well as behavior. Since this is a two year project, the participants should be followed into the third grade where both teacher progress assessments and the Florida Standards Assessment would be utilized that

determines whether or not students are retained. These data also should be compared to similar students who were non participants.

I believe very strongly that this pilot project, and its research component, will yield findings of positive academic growth in math, reading, and behavior. The anticipated outcomes would add increased validity to the program and provide necessary insight into how to both expand and improve it. The key will be implementing it with great fidelity. Without fidelity of implementation, the findings will be less reliable and valid. Therefore, monitoring the implementation process is essential.

The accountability for this project needs to fall on the district level liaison. He or she should provide consistent oversight of the pilot. This person also should provide the guidance for implementing the pilot with fidelity and the leadership required to ensure that progress is being made over time. The district should hold all chess coaches at the five school sites responsible for implementing the initiative and tracking student progress over time. The continuation of the program after two years will depend on these assessment results.

SECTION SEVEN: SUMMARY IMPACT STATEMENT

Justification

In summary, the implementation of this program will require the approval of the superintendent and school board. The policy statement would simply state the intention to provide a pilot program for the implementation of chess as a learning experience in the second grades of any number of schools. As recommended in this policy approval document, the chess program should be implemented with fidelity, and undergo both formative and summative assessments. Furthermore, upon review and adjustments emanating from the year one assessment, the chess program would be continued through a second year in the second grades and expanded to include third grades. The justification for the chess program is based upon sound national and international research that indicates past positive results in improving student achievement in math, reading, and social development and self-confidence.

The research also supports certain basic elements for implementing the pilot. The chess implementation initiative would involve the hiring of a chess liaison for the district that has sufficient chess skills and marketing prowess to promote chess in schools. Implementation also would include creating a qualification process for identifying chess coaches at each pilot site, providing a reasonable stipend for all chess coaches, creating or purchasing a viable chess curriculum, promoting chess within the community, providing all schools with ongoing funds to meet material needs, and creating a system of tournament play within and outside of the county. The chess liaison would work within a specific policy framework to include the introduction of chess at five elementary schools

as approved to participate in the pilot starting in the second grade. The school and student participation is strictly on a voluntary basis.

I believe the policy to approve chess as an academic program option is sound because research indicates it is effective in improving learning outcomes in math, reading, and social development. In addition, the cost is very low. The key is proper implementation and strong program marketing. As a parent, teacher, and/or student, I may be skeptical of a game touted to improve academic outcomes, but if the district has data proving academic improvement is probable, it will be difficult for anyone to oppose it as an effective supplement to instruction.

Values

The intense push for standardized testing in schools points to a strong desire by the public to hold schools accountable for the most effective and efficient use its tax dollars. The public wants to know that it is getting its money's worth. I understand the interest in return on investment. Why throw tax money at a system producing, or perceived as producing, only marginal results? The public wants to see results. As public school educators and leaders, we must produce positive outcomes with the public's tax dollars. We should always look for the most efficient and effective ways to inspire and move kids forward both academically and socially. Chess can meet these expectations.

The research is convincing. With proper implementation of this chess programming implementation policy, we can bring in a cost-effective, game-changing program that will lead to significant student academic advancement. Chess can help the rich, the poor, the socially inept, the low-level performer, the behavioral problem, and the

high-level performer. Chess is good for all children; therefore, chess is good for the school district. I believe we can achieve our academic goals more effectively by incorporating chess.

I recently discovered that Florida's Broward County school district is embracing the concept of chess in school in a significant way: "The school district plans this fall to add chess to the second and third grade curriculum at most elementary schools after a successful pilot program this year at three Sunrise schools" (Travis, 2014, p. 1). I predict our pilot program implementation would mirror their success. The article about Broward County School goes on to mention a chess curriculum called *First Move*. It appears this program is achieving its objectives in Broward County. We should explore this program as a potential adoption in our district. All educational leaders have a stake in the continual transformation of our schools to cause the most positive student academic and social outcomes possible. And we can no longer ignore chess as a viable tool to help make that happen.

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